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Providing and Promoting Professional Development for Technology in the K-12 Classroom

The ‘Net Generation’ that is entering school today is so far advanced over most of the teachers that are greeting these students that it is a challenge just to know the terms the students are familiar with and use daily. To effectively teach these students, teachers should reflect on how the Internet and hypermedia technology has the ability to link a word or picture to another set of information, and change the way students respond to and seek information.

One of the major ways that teachers have to adapt is the way that their planning takes place. Our planning must structure lessons so that there are multiple hypermedia resources for students to access. The general media center, media centers within the classroom, and media access at home and in the community must be used and attainable to students. Not all students will have the same accessibility to all the same experiences, but by sharing experiences, they can share details with each other. Teachers must set parameters for the students’ learning experiences. There must be limits to what constitutes a valid resource, and a valid learning experience. The teacher must be flexible and understand that self-directed learning requires students to build their learning experiences as they share what they have learned with each other.

The digital revolution requires teachers to be very familiar with all types of technology. It also requires that they experiment with, and become familiar with new gadgets. Teachers must educate themselves and request training from administrators. Teachers and staff must use the internet at home; ask for help when we do not know how to do something and request permission to go to conferences and workshops on new technology.

Technology is changing every day. Our students are keeping up with these changes and school personnel need to be keeping up to date as well. Our students can be excellent resources relating to the newest technology.

This school year with the Federal Government’s passing of the American Recovery and Reinvestment Act of 2009, Title I schools were distributed stimulus money and part of this money was allocated for technology improvements. Committees were formed and schools came together to decide how they would spend this money. The Alabama State Department of Education had to provide a Technology Plan to explain how they were going to spend the money and be accountable for the funds. By the time, money was divided and each school was given their allotment, the amount of money was not nearly as much as the schools had hoped. Most schools now have new ELMOS, clickers, computers, laptops, computer labs, and Smart Boards for their schools. They did get new technology, but not as much as they needed. Their infrastructure had to be updated; we as educators got the new computers in our classrooms, so buildings needed more money for the hardware and wiring to help this new equipment to run smoothly.

The telecommunications component of the technology system is never ending and the hardware is very costly. Technology teachers are expected to know all about infrastructure, most do not. This is something that they have to learn as they learn more about each new system and each piece of new technology.

The integration of learning technologies throughout the school and the curriculum has been assisted by the installation of the wireless network, classroom computer stations, and trolleys of laptop computers, which are positioned around the school for convenient access to students when the need arises (Saville 1). Moreover, there is the computer lab where regular class sessions are scheduled and a considerable amount of unscheduled time that classroom teachers can use it if needed. Schools need to promote collaboration between colleagues to support the establishment and success of technology. Competition and isolation between co-workers has been the downfall of capitalizing on the opportunities technology can bring to the instructional content. Technology can provide authentic, engaging, and challenging assessment strategies. Assessment needs to be integrated at the planning stage of each unit, so that the assessments themselves contribute to the student learning. There is research to suggest that effective technological integration can support higher-order thinking by engaging students in authentic, complex tasks within collaborative learning contexts’ (Means et al. 34-39).

There is general agreement about teacher anxiety. David Moore and Devorah Lieberman in an essay written in April of 2005suggest that not only most teachers, but also most staff developers do not understand how to deal with teachers stressed over the anxiety of learning how to use this new technology. They are tied to the ‘direct instruction’ model and understand the possibilities inherent in the techniques. The challenge is to find some way that teachers can understand that this is an opportunity rather than a threat. This is going to take some powerful tools that are genuinely useful to teachers in making the pedagogical shift from being the ‘sage on the stage’ to mentors who ‘guide on the sides.’

Lieberman and Moore argue that technology should be used to make professional development a child-centered and student owned process. This process needs to be integrated into every aspect of school life so that the curriculum and the students’ needs drive technology, not the reverse. Second, this requires new models of staff development that encourage bottom-up rather than top-down change. This means not only ending teacher isolation but also building human networks in an infrastructure that includes teachers, parents, principals, school boards, and district personnel. Finally, the school has to be a ‘safe haven’ for learning and growth and the inevitable mistakes that accompany both.

Goldstein sums up several views concerning staff training when she listed the lessons learned from the implementation of the PBS Mathline project. Teachers did not want a model or an ideal classroom. They wanted a situation in which they could learn from both their achievements and mistakes. They wanted sustained staff development, not short-term programs. They wanted teacher-controlled programs, not top-down directives. They wanted programs that would advance them intellectually and professionally. They wanted flexibility in terms of time when the programming was offered, so that they could complete it on their schedule and on their own time.

Nancy Hechinger’s discussion of the Technology as a Second Language Curriculum developed for the Edison Project illustrates the way curriculum can be used to drive technology and eventually promote a transformation in the school culture. The guiding standards are the “Three C’s” –comfort, confidence, and creative. During the first year teachers simply become comfortable with new technologies, the second year they develop confidence to use it, and the third year and later, it is expected that the teachers will become creative users of technologies such as Internet, CD-RODS’s, video images, sound, and multi-media. School systems have already invested in technologies that are diverse and complex. There is a tendency to talk about technologies as if they are all the same. Yet there are major differences. There are significant costs associated with connecting schools to the information highway. The goal of connectivity is expensive and one that can only be achieve in the long term. Many school buildings are too old to sustain the wiring and in the case of schools with asbestos, it is prohibitively expensive. Rates for telephones uses are high. Teachers are all at different stages in their careers with varies learning styles and these needs must be considered. Providing adequate support may prove key. Wells recounted that when Kentucky began wiring schools, they found teachers needed help at each school site. The state created a school technology coordinator position at each site, providing coordinator with training in the expectation that they would in turn help individual teachers.

Technology is a tool to support student learning. It is the ability to use the computer and other technologies combined with a variety of teaching and learning strategies to enhance students’ learning of required basic skills. The conditions required for successful integration within the school environment will be examined, followed by some practical examples and their outcomes. The Internet is perhaps one of the most transformative tools in history. It has reshaped business, media, entertainment, and society in many astonishing ways. However, for all its power, it is just now being tapped to transform education (Web-Based Education Commission 1).

Technology in Alabama must be aligned to technology plans and must be oriented to improve student achievement. Teachers must be made to feel comfortable using technology for personal productivity, and for gathering and analyzing student data. Students are using sophisticated technologies, and it is critical to prepare staff for the 21st Century school and work place. In order for schools and technology plans to stay up to date, professional development must be provided that is keeping pace with current technologies for the 21st Century and beyond.

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